Dear Dave - This was a doctrine paper I wrote for the RU Board while they were considering me. The main thing that has flattered is the "policy" theme, page 3.

J.

Hamburg

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Issues for discussion with the Board

Rockefeller University: the next decade
(SCIENTIA pro bono humani generis)

The basic theme is to sustain RU as a pathfinding institution for the fostering of scientific creativity, and to develop the leadership for its applications to human benefit.

Embodied in that theme are the familiar watchwords:
EXCELLENCE, COMMUNITY, RESPONSIBILITY.

There is now general agreement that the dream of the "graduate university" (Bronk's) has been overtaken by the events of the past two decades:

These include
1) the federalization of higher education since Sputnik
2) the egalitarian pressures on public institutions
3) the demographic reality: declining 'demand' for professors
4) the asymptote of public support for basic science
5) the economic pressures on the real-valued resources available to RU.
6) the funneling of so many national problems into the City of New York.

As there are now so many other competent universities, there are serious doubts whether the graduate-university model would serve such a special role as to justify the unique investment confided to RU.

Many options still remain open, consistent with the special traditions, setting and opportunities of RU, which include high skills and reputation, small size, and a level of civic support that make possible a degree of self-determination of goals and style hardly achievable elsewhere. These assets must not be wasted on efforts that merely match what can be done in other settings.

Small as it is, RU must still accomodate a wide range of intellectual tastes, areas of discourse and personalities; my remarks about principal themes at no point should be interpreted as a Procrustean mold into which each individual should be forced to fit. Furthermore, my perspectives surely need to be informed by far more extensive practical observation.

Taken as a whole, however, RU as an institution can embody the E-C-R triad along the following lines:

Career structures.

Role of graduate education.

RU probably needs to keep a seasoning of graduate students even more than they need RU. A modest number can be accomodated at very low incremental cost, PROVIDED they are very carefully selected for the credentials to assure their suitability for an inevitably highly specialized program. Alternatively, cooperative arrangements with other institutions can enable programs of a depth and quality not otherwise achievable. (The joint Ph.D.-M.D. program with Cornell is, in principle, an excellent example.)

Post-graduate education and career entry.

The post-doctoral fellows, and perhaps most constructively the university fellows embody the most important educational contribution that RU can make to the national scene. For many scientists, the time from about age 25 to 40 should be the interval of greatest innovation and seasoning. It is a time when the scientist should be given the utmost freedom from external pressures and responsibilities. It is a career stage that is still relatively less costly in institutional resources (e.g. space, apprentices), and RU could well afford to develop a larger number of the most excellent younger workers with the conscious view that they would then colonize the rest of the country. The university will have to give special attention to the framework of support and inducements that will attract and nurture such individuals. But the tenure policy should be such as to leave both sides freer to decide about the life-long role he or she will play at RU.

At the other end of the age scale, a cadre of senior statesmen-of-science in the interval of say 50-65 are indispensable in setting the overall directions of the university, providing wisdom and leadership as much as scientific content. The attributes for choice, and the incentives needed to attract such people are not necessarily the same as for the younger workers. There are too many distinguished counter-examples to refute the possibility that a single person could live out an entire scientific career at RU, exhibiting a personal maturation and evolution through these stages. It is unlikely that this pattern would reliably bring and sustain the highest available levels of talent to the university, and there are reasons to prefer a system of periodic refreshment from other contexts.

I was quite surprised the Board adopted this reversal of Bronk.

Program emphasis. Biomedical research as core.

The historic focus of Rockefeller on "medical research" was a source of great strength and efficiency during the early years of the institution. There is little doubt that the applications of scientific advance to health are the preëminent routes to human benefit. However, in today's world, we must take a much larger view of health than is embodied in "medicine". I would suggest that RU particularly look for new opportunities a) to bring basic scientific advance to bear on sadly neglected needs in world health and tropical medicine; and b) to develop and integrate the knowledge needed for more effective policies and practices in preventive health in the U.S. These initiatives would sustain RU as a place that embraced a spectrum of research activities

that ranged from the most basic, untargetted biological and behavioral research to the investigation of specific pathologies in experimental animals and man. RU hopefully has a better opportunity than most institutions to maintain intellectual community in its overall research effort.

The country is full of hospitals and medical schools, but gives relatively little scientific attention to preventive health; and we need to develop the scientific leadership to replace the hysterical news headline as the source of policy wisdom about costly environmental and other regulatory interventions. Human behavior is inextricably intertwined with all the most pressing health problems — from the health-saving behaviors that may forfend physical ailments, to the unbelievable toll of mental illness. Finally, an institution that totally lacked the ways of thinking of disciplines like physics and mathematics would be depriving itself of even a glimpse of universality. In short, even a stringent implementation of focus on health-related sciences would still require a blend of disciplines as broad as today's. On the other hand, the fine-tuned realization of such a policy will pose a challenge to all the disciplines, a reexamination of their fulfillment of the triad of excellence-community-responsibility. I envisage evolutionary changes in response to these challenges: it would be my duty to articulate them, and to join with the faculty in meeting them in a mature and responsible fashion. The creative productivity of an existing community of excellence should not be traumatized for the sake of utopian tidiness of structure, but it is unlikely that RU can meet either its internal or external criteria without improving its coherence, identity and responsivity to socially perceived needs.

Participation in scientific policy.

RU has unique opportunties and responsibilities to develop and furnish leadership in assisting national decision-making in matters requiring scientific expertise. However, the education of many scientists is too narrow to give them the skills and perspectives needed to match their authority in scientific disciplines. There is no easy way to offer such an education, and in particular without interfering with the specialty training of the young scientist. However, senior scientist-statesmen who already give a great deal of attention to policy matters might be encouraged to recruit younger fellows as junior partners. Agencies like the National Academy of Sciences or the Institute of Medicine might be persuaded to second some of their activities to the RU campus specifically for educational value. Cooperative efforts with economists and other analytical specialties not represented at RU might be coopted for problem-solving tasks that could also recruit junior scientists in roles that would enhance their education for more responsible policy roles later. Besides government agencies and consumer-oriented groups like the Natural Resources Defence Council, many industrial corporations must now mobilize a great deal of analytical work in meeting regulatory requirements. These efforts would be experimental, and entail virtually

we haven't learned more better!

We do have many individual factors, plus Bill Lowrance and, most recently, John Burns.

no costs to RU, and certainly no long-term commitments.

The pursuit of excellence.

RU has many advantages for this pursuit: besides the fiscal stability reflected in its endowment, the avoidance of departmental structure allows for innovations in program areas that might otherwise be stifled. (This is also an obvious challenge and opportunity for the president that should also define the kind of credentials and experience needed for that role).

The most exciting and revolutionary advances in science are those which define new fields of inquiry, often resisted when they failed to fit the mold of existing specialties. The resynthesis of microbiology, genetics, and biochemistry — in which RU played an important historic role — faced many obstacles from existing academic departments in the 1940's and '50s. Many of these developments received their inspiration from problems arising in technical praxis that had not previously been incorporated into academic scholarship. Interdisciplines like biochemistry, astrophysics, radio-astronomy, computer science which are at center-stage today have all had a similar history; and the very soundness of their present establishment may well be the impediments to tomorrow's intellectual revolutions. RU has at least the administrative flexibility to be able to surmount the impediment: "Where does this innovation fit? " However, if uniquely talented individuals are to be recruited and retained, they must be offered an environment that matches their talents. The size of the institution may be a threat both to the sense of community, e.g. to the possibility of avoiding a more hierarchical and compartmented structure, as well as to the adequacy of material resources, per capita. It is difficult even to know how to measure size, much less to formulate graceful ways to change it. The complexity of contemporary science generally means more hands are needed for every unit of pursuit; And it may be futile to look to the past for guidance. However, the community itself must see the imperative of controlling its own growth: that sheer size can defeat the quality of life at RU; that it must help delineate long-range policies that can conserve or ameliorate the balance.

In 1901, the tranquility of the local environment was given by the site; today it is all but destroyed by the pressures outside, and will be totally by our own numbers. Even if unlimited population growth can be averted, we have still to struggle to maintain the necessary amenities of place — e.g. housing, recreational and cultural facilities -- to sustain an esthetic and spiritual oasis that can fend off the noise from outside.

Some of the changes since 1901 indeed enrich the environment in other ways. Much could be done to enhance the scale of cooperation and communication around 68th Street. Particularly in the face of the fiscal pressures we all face, it is time for a new start in moving the neighboring institutions to work better as voluntary partners in a more efficient overall system.

The next decade is plainly one of transition for RU towards more

extroversion, in particular to build a broader base of civic and fiscal support to succeed its initial patrimony. Working capital will still have to be expended during that transition, to sustain the quality of faculty that is also a major capital resource. The worst outcome would be a winter of discontent that drove away the most desired of the younger and middle-aged members, and destroyed the flexibility of the president in managing the most productive human resources.

With respect both to intra-mural change and new inter-institutional relationships, the faculty must be regarded as the ultimate treasure of RU. In order to devote itself to the scientific pursuits for which it was enrolled, it must have confidence that the administration is acting in its interests, that it can have no reason to question the dignity, integrity, and respect with which it will approached and dealt. There will sometimes be conflicts between institutional and individual needs and desires; the reconciliation of such conflicts always requires mutual respect and fair-dealing, and often more time than might otherwise be thought convenient. The building of confidence (and respect for leadership and authority) in the office of the president is the most important task and investment of a new administration. In the present circumstances, it is particularly important that the wisdom of the existing faculty be consulted in planning both the style and substance of changes that may affect the texture of the institution. To do all this requires continued attention to the lines of communication between the faculty, the president, and the board, and the duty laid on all sides to understand and respect the others' concerns and responsibilities.

To recapitulate, RU can be a model of national leadership in "Science for the good of humankind" in the following ways:

Excellence: by exploiting its own style of career structural arrangements to identify and nurture the best of pathfinding talent; to stress the opening up of new fields of inquiry even more than deepening well worn tracks.

Community: by building the institution in a way that optimizes the uses of the intellectual and material setting as a critical frame for the thinking of individual scholars.

Responsibility: by connecting the institution to a continuum of challenges for the application of new knowledge for human needs, always calling upon its faculty to express themselves through their highest and most precious skills.